

TB Flourochrome Smear Microscopy, Culture and Drug Susceptibility Testing Techniques

Ndola School of Biomedical Sciences, August 23-27, 2004

Introduction

With the introduction of Anti-retro Viral Therapy (ART) in public hospitals, there is need to improve the sensitivity of detection of AFB, improve culture and drug susceptibility testing of *M. tuberculosis* and other bacterial pathogens that may affect patients infected with HIV.

Objectives

To train technologists in appropriate use of the FA microscopy for improving detection of AFB, culture and drug susceptibility testing, maintenance and quality assurance with basic laboratory equipment.

After the completion of this course participants will be able to:

- (1) Prepare reagents, perform and report flourochrome AFB smear microscopy
- (2) Correlate ZN and fluorochrome AFB smear microscopy
- (3) Prepare reagents and media for detection of mycobacteria and susceptibility testing
- (4) Explain safety measures for culture and drug susceptibility testing (DST)
- (5) Report culture and drug susceptibility test results for *M. tuberculosis*
- (6) Perform biochemical tests and identify *M. tuberculosis*
- (7) Susceptibility testing of bacteriology in the routine microbiology
- (8) Document and perform internal quality control and EQA for smear microscopy, culture and drug DST of *M. tuberculosis* and other bacterial pathogens in clinical specimens

Methodology

TB Experts will provide practical training in AFB detection using flourochrome smear microscopy. Culture and drug susceptibility testing methods for both MGIT and L-J Proportion will be covered.

Expected Output

Participants will be trained in appropriate use and maintenance of the FA Scope, culture and drug susceptibility testing of selected microorganisms including *M. tuberculosis*

Target Groups

Technologists performing high volume AFB smear microscopy for detection of TB. Participants will include representatives from each Province as well as Chest Diseases Laboratory, TDRC, UTH and CIDRZS who currently or may perform culture and drug susceptibility testing for TB and other bacteria.

Tuberculosis/Microbiology of Provincial Laboratory

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| 22th August 2004 TIME 16.30 – 18.00 | Registration |
| MONDAY | Chairperson Ms. Ruth Tembwe |
| 8.30-9.30 | <ul style="list-style-type: none"> ▪ Welcome Remarks- Dr. Kafwabulula ▪ Official Opening-Dr. M. Maboshe (WHO) ▪ Workshop objectives- R. Tembwe ▪ Introduction of participants and workshop expectations |
| 09.30-10.00 | ▪ Overview of National TB Program- Dr. Kafwabulula |
| 10.00 – 10.30 | TEA Break |
| 10.30 – 11.15 | TB surveillance in Zambia Dr. Alwyn Mwinga |
| 11.15-12.15 | National TB Specimen Transport, culture and Drug Susceptibility Testing- Ruth Tembwe |
| 12.15-12.45 | Bacteriology of Tuberculosis- C. Sterling |
| 13.00-14.00 | Lunch |
| 14.00-15.00 | Detection of AFB by Smear Microscopy- R. Ferguson |
| 15.00– 16.00 | Reporting AFB by Fluorochrome Microscopy- B. Madison |
| 16.00 – 16.30 | Tea Break |
| 16.30 – 17.30 | Use and maintenance of the FA Microscope- R. Ferguson |

TUESDAY

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| TIME 24th August 2004 | Chairperson- B. Madison |
| 08.00 – 9.00 | Safety in the TB Laboratory- R. Tembwe |
| 9.00-10.00 | Specimen Decontamination for TB Culture and DST- C. Sterling |
| 10.00 – 10.30 | TEA Break |
| 10.30-11.30 | L-J Inoculation, reading and reporting TB cultures- R. Ferguson |
| 11.30-12.30 | MGIT Inoculation, reading and reporting cultures- D. Lubasi |
| 12.30-14.00 | LUNCH |
| 14.00 – 15.30 | Preparation of culture and drug testing media – C. Sterling |
| 15.30 – 16.00 | TEA |
| 16.00 - 17.30 | Reporting L-J and MGIT Drug susceptibility tests results- Tembwe/ Ferguson |

WEDNESDAY

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| 25th August 2004 TIME | Chairperson- R. Ferguson |
| 08.00 – 9.00 | Equipment maintenance-autoclaves, inspissators, pH meters, incubators, freezers and refrigerators- B. Madison |
| 9.00-10.00 | Preparation of Lowenstein Jensen Media/ Assembly of FA Scope |
| 10.00 – 10.30 | TEA |

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| 10.30 – 11.30 | Preparation of Lowenstein Jensen Media/ FA Scope Assembly |
| 11.30-12.30 | Preparation of Lowenstein Jensen Media/FA Scope Assembly |
| 12.30 – 14.00 | LUNCH |
| 14.00 – 15.15 | Preparation of Lowenstein Jensen Media/FA Scope Assembly |
| 15.15 – 15.30 | TEA |
| 15.30 - 17.00 | Preparation of Lowenstein Jensen Media/ FA Scope Assembly |

THURSDAY

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| TIME 26th August 2004 | Chairperson – C. Sterling |
| 08.00 – 9.00 | Drug susceptibility testing of bacteria-standards- B. Madison |
| 09.00-10.00 | Preparation of Bauer Kirby Susceptibility test media- J. Mwansa |
| 10.00 – 10.30 | TEA |
| 10.30 – 11.30 | Specimens and organisms to test for susceptibility- J. Mwansa |
| 12.30 – 14.00 | LUNCH |
| 14.00 – 15.15 | Documentation and monitoring quality control in DST- B. Madison |
| 15.15 – 15.30 | TEA |
| 15.30 - 17.00 | WHO Net Reporting and quality assurance – J. Mwansa |

FRIDAY

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| 27th August 2004 TIME | Chairperson –J. Mwansa |
| 08.30 – 10.00 | Workgroups for TB Culture, FA, DST (Sterling, Ferguson, Madison) |
| 10.00 – 10.30 | TEA |
| 10.30 – 12.30 | Workgroup Presentations- J. Mwansa/Lubasi |
| 12.30 – 14.00 | LUNCH |
| 14.00 – 15.15 | Summary of EQA for FA smear microscopy, culture and DST- Tembwe/ Madison |
| 15.15 – 15.30 | TEA |
| 15.30 - 17.00 | Closing ceremony |

Faculty and facilitators- Ms. Ruth Tembwe- Chest Diseases Laboratory
Mr. David Lubasi- University Teaching Hospital
Dr. B. Madison, CDC- Atlanta, USA
Ms. Catherine Sterling, Tennessee Department of Public Health,USA (retired)
Mr. Robert Ferguson, New Mexico Department of Public Health, USA (retired)